



BIOTECH TESTING SERVICES

TEST REPORT

LAB NO. : 2003541/ 1

DATE: 21/10/2020

NAME OF CUSTOMER : M/S. MERINO INDUSTRIES LIMITED
ADDRESS : 70, KLJ Complex, 2nd Floor,
Moti Nagar, New Delhi - 110015. INDIA
REFERENCE : Your Letter Ref. Nil dated September 17, 2020
Kind Attention: Deepu Thomas Joseph
DATE OF RECEIPT : 23/09/2020
DATE OF INITIATION : 23/09/2020
DATE OF COMPLETION : 21/10/2020
SAMPLE DESCRIPTION : Sample labeled as -

Sr. No.	Sample Code
1.	Chemical Resistant CHEM+ Laminate
Untreated lab control	

Name of Test:

Evaluation of Antimicrobial Activity of Sample

Name of Test Protocol:

JIS Z 2801: 2010

Test Organism used for evaluating Antimicrobial activity:

1. Staphylococcus aureus ATCC 6538
2. Klebsiella pneumoniae ATCC 4352
3. Streptococcus faecalis ATCC 9790
4. Salmonella typhimurium ATCC 14901
5. Enterococcus faecalis ATCC 29212
6. Meticillin Resistant Staphylococcus Aureus ATCC 43300
7. Candida albicans ATCC 10231

Test Conditions:

Neutraliser used : Buffered Saline with Tween 80 - 0.01 %
Contact Time : 24 hours at 37^o C
Incubation Temperature : 37^o C for Bacteria; 28^o C for Fungi
Media and Reagent : Soyabean-casein digest agar for Bacteria; Sabouraud's dextrose agar for Fungi

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Results:

ANTIBACTERIAL ACTIVITY

1. Test Bacteria: *Staphylococcus aureus* ATCC 6538

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.16×10^5				Log = 5.06
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.50×10^5				Log = 5.39
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	900	2.95	2.44	99.64

2. Test Bacteria: *Klebsiella pneumoniae* ATCC 4352

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.31×10^5				Log = 5.11
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.73×10^5				Log = 5.43
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	240	2.38	3.05	99.91

3. Test Bacteria: *Streptococcus faecalis* ATCC 9790

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.10×10^5				Log = 5.04
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.17×10^5				Log = 5.33
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	20	1.30	4.03	99.99

4. Test Bacteria: *Salmonella typhimurium* ATCC 14901

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.24×10^5				Log = 5.09
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.40×10^5				Log = 5.38
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	1390	3.14	2.24	99.42

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5. Test Bacteria: *Enterococcus faecalis* ATCC 29212

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.03×10^5				Log = 5.01
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.34×10^5				Log = 5.36
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	2140	3.33	2.03	99.08

6. Test Bacteria: *Meticillin Resistant Staphylococcus Aureus* ATCC 43300

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.15×10^5				Log = 5.06
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.23×10^5				Log = 5.34
Sample Identification	No. Bacteria on treated sample (C)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	20	1.30	4.04	99.99

ANTIFUNGAL ACTIVITY

1. Test Bacteria: *Candida albicans* ATCC 10231

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated lab control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.15×10^5				Log = 5.06
Untreated lab control: Conc. of Inoculum on untreated sample after 24 hour (B): 1.81×10^5				Log = 5.25
Sample Identification	No. Fungi on treated sample (C)	Log of Fungi on treated sample	Antimicrobial Activity (R) (Log B-C)	Microbial Kill (% Reduction)
Chemical Resistant CHEM+ Laminate	1380	3.13	2.12	99.23

The Standard Antimicrobial value of Evaluation $R \geq 2.0$

COMMENT:

When tested as specified, **Chemical Resistant CHEM+ Laminate**; **PASSES** the Quantitative Assessment of activity for *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Streptococcus faecalis*, *Salmonella typhimurium*, *Enterococcus faecalis*, *Meticillin Resistant Staphylococcus aureus* and *Candida albicans* by **JIS Z 2801: 2010 Test Method**.

For BIOTECH TESTING SERVICES



Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)

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